....Airplanes As a Network....
Information Connectivity in Aviation

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AIRBORNE INTERNET/Collaborative Information Environment

What IS this thing?

A concept that overlays network theory and principles into the transportation realm

…Information CONNECTIVITY ….A scalable, general purpose, multi-application data channel for people in transit

Airborne Internet Value Proposition

A general purpose, multi-application data channel represents the opportunity to:

1. **Consolidate flight deck functions to reduce equipage**
   - **in the aircraft (aircraft owner *saves money*)**
   - **On the ground (FAA *saves money*)**
2. **Create a NEW revenue stream for aircraft operators that does not exist today (operators *make money*)**

We focus on the creation intermodal transportation networks for better personal transportation….

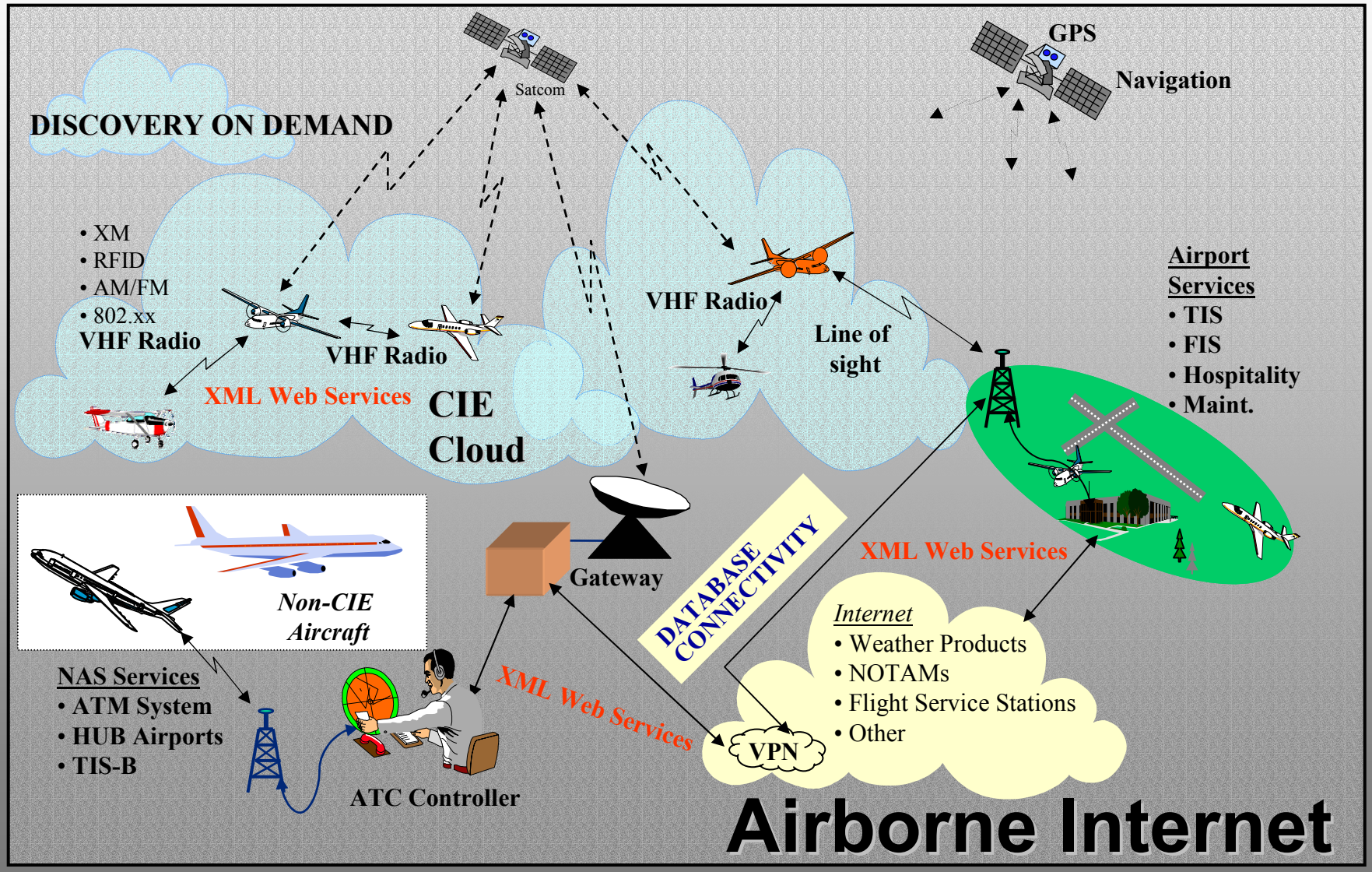
- But, they lack the information networks needed by the people who operate and use them.

The Human Connectivity Imperative:
People want to be "connected" at all times, even while transient
…….they NEED information connectivity!

- **Mobile phone users to hit 2B by 2007**
- **Nearly ¾ of the US population older than two now have Internet access (200 million) !!**
- **78% of people surveyed want to check their email while in flight (German study)**

Collaborative Information Environment

"Meet us in the cloud"



Original graphic courtesy of Computer Networks & Software, Inc.

Functional Picture of the Collaborative Information Environment for Aircraft

Communications Channels – RF, IR, FM, XM, Satellite

O/S, Products & solutions

 **Engine**	 **Cockpit**	 **Cabin**
Maintainer	Pilot	Passenger
MX	INFO	TAINMENT

Result of the Traditional Method of Deploying New Information in Aviation

How did it come to this?

Result of the Traditional Method of Deploying New Systems in Aviation

How did it come to this?

- **Analog radio technology at the time**
- **Did not have today's digital transfer technology**
- **Did not have secure mobile routing technology**
- **Did not have "multi-function displays"**
- **Did not have data warehouses and broadband**
- ***Did not have a general purpose, multi-application data channel, Airborne Internet***

FAA Tech Center
Airborne Internet Research Lab

- Integration to TC NAS labs: ATC, CNS, Simulations, Security
- Six T.C. Aircraft for flight tests
- Application research & development
  - SWIM, CPDLC, etc.
  - Data Compression
  - XML aviation services
  - VoIP, “packet” voice
  - FAMs: video, voice
  - Black Box real time data
  - IP Version 6
  - Weather (sensors/apps)
  - EFB
  - InfoSec

INDUSTRY EFFORTS IN A.I.

The Airborne Internet Consortium

Industry sponsored consortium to advance A.I./CIE

- **Develop <u>open</u> standards, GS&Cs**
- **Industry funded, Gov't can contribute**
- **10 meetings in the last 19 months**
- **Developed an A.I. Work Plan ($30 Million)**
- **Public-private collaboration - 501(c)3**
- **Boeing-ATM, United Airlines, Airbus, Aerosat, Microflight, PMEI, CNS Inc., Mulkerin Associates**
  - **Interest expressed Northrop Gruman, Honeywell, ITT, CIRA (Italy)**

Network In the Sky

Every aircraft is a network node

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